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The contribution of facilitated group learning to supporting innovation amongst farmers

There is increasing awareness of the need for new approaches to delivering agricultural extension based on an interactive model of networking systems which integrate knowledge production, adaptation, advice and education. This paper explores the literature surrounding the modelling of farmer decision making, concepts of learning and behaviour change, and ways to stimulate attitude and behaviour change. It shows that facilitated group learning can be a very effective tool for supporting innovation amongst farmers and cites the ADER project, which was implemented in the East of England region between 2001 and 2007, as an example of good practice.

Keywords: AKIS, facilitated group learning, farmers, ADER project

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Introduction

Several years ago, prompted by organisations such as OECD and FAO, the concept of 'agricultural knowledge and innovation systems' (AKIS) was introduced into the policy discourse. The concept was originated by a policy based on the idea that, in order to accelerate agricultural modernisation, innovation transfer should be strongly coordinated (Leeuwis and van den Ban, 2004). It was implemented in many countries through a close integration, generally at national level, of public research, education and extension bodies, in many cases under the control of the Ministry of Agriculture. AKIS embraces four main actors whose mission is related to agricultural innovation, namely research, extension services, education and training, and support systems (i.e. producers' associations, credit and input organisations etc.).

In many parts of Europe there has been a historical tendency when developing farm extension programmes to design a 'one size fits all' approach which assumes that all land managers are similar in their life and business goals, similar in their learning styles and are all profit motivated. Most of these programmes have also had a 'top down' approach where information is provided to land managers which is intended to persuade them to change their behaviour. Such an approach to knowledge transfer must now be considered as outdated, for at least two reasons.

Firstly, the political context of food and farming systems has changed. Agricultural practices are now set within the context of achieving sustainability and responding directly to consumer concerns. Agricultural research also has to address a range of related issues and demands, from the need for stable food security and safety systems, environmental criteria, socio-economic changes in rural communities, to issues such as landscape management, biodiversity and conservation.

Secondly, farming is much more diverse than in the past and is often combined with other activities. New knowledge is generated by farmers as well as researchers (basic and applied) and private companies and the importance of informal knowledge networks is increasingly recognised (Knickel *et al.* 2009). EC (2009) described AKIS in Europe as "currently unable to absorb and internalise the fundamental structural and systemic shifts that have occurred" (p. 95). It concluded that the old linear model of knowledge transfer (from scientists to the users) is outdated and should be replaced by an interactive model of networking systems, which integrates knowledge production, adaptation, advice and education.

Facilitated group learning is a potentially valuable component of a participatory problem solving approach in agricultural extension which can help to support innovation amongst farmers. This paper presents a theoretical background to the topic by firstly illustrating the differences that have been found between farmers when their decision-making processes have been modelled. It then reviews some of the literature surrounding concepts of learning and behaviour change and discusses some of the most effective ways to stimulate attitude and behaviour change in land managers and sustainable rural development. The paper finishes by citing as a case study the Agricultural Development in the Eastern Region (ADER) project, which was implemented in the East of England between 2001 and 2007.

Modelling farmer decision making

There has been a tendency amongst policy-makers and rural support advisors to view agriculture and farmers through a very simplified economic lens. There has also been an implicit assumption that all land managers are similar in their personal and business goals and are all focused on managing their farms as a profit driven business.

Edwards-Jones (2006) agrees that the traditional economic theory underlying these assumptions are based on the idea that people make decisions in order to create an expected change in their 'well-being'. The technical term used for 'well-being' in economics is 'utility'. 'Utility' is a useful concept for economists to model behaviour in a conceptual way but, according to Edwards-Jones (2006), this is too difficult to use in any real practical way. Many agricultural economic models assume that land managers always strive to maximise utility. Profit is often used by economists and policy-makers as a measurable substitute for utility and so the idea of the rational profit maximising land manager is created. This traditional view of land managers has been used in economic theory for years and has been central to agricultural policy models.

However observations show that a simplified view of land managers with the same management goals (i.e. maximum profit) cannot be true in all cases (Edwards-Jones, 2006). In an agricultural context one might expect all land managers in the same region on the same soil type to have exactly the same enterprises. While it is true that all farmers in the east of England, for example, with its good soil and low rainfall, tend to have crop based enterprises, not all farmers have the same enterprises or grow the same crops in the same way. As the importance of financial factors in the decision making process of land managers decline, so does the usefulness of focusing on profit maximisation as a measure of adoption of new technologies and policies.

In the current European Union (EU) policy context there is a good deal of interest in analysing how farmers will respond to a range of policies which are largely concerned with non-financial issues, particularly 'public goods' including the provision of environmental goods, ethical issues such as animal welfare, and social issues such as countryside access. In an attempt to understand farmer responses, the traditional disciplines of agricultural science and agricultural economics have increasingly drawn on contributions from other disciplines such as sociology and psychology.

The adoption of new technologies and policies has been fundamental to agricultural development over the last 50 years. Research work in this area has identified at least five sets of non-financial variables that influence the decisions of farmers on the adoption of new technologies and policies:

- Farmer characteristics (age, education, gender, attitude to risk and personality);
- Household characteristics (stage in family cycle, level of pluriactivity and work patterns of spouse);
- Farm structure (farm type, farm size and debt to asset ratio);
- The wider social milieu (level of extension available, information flows, local culture, social attitude, attitude of trusted friends, the policy environment and the structure and impact of a range of institutions);
- Characteristics of the innovation to be adopted (characteristics of product or policy to be adopted).

In a study to measure the attitude of farmers to animal welfare, Austin *et al.* (2005) found that not all farmers held the same managerial goals. Farmers considered to have a 'welfare orientation' answered questions in a similar way but differently to farmers with a 'business orientation'. Results suggested that there was a correlation between the strength of farmers' attitude towards an issue and their age and education. Also there was a significant correlation between scores for farmers' attitude to the importance given to an animal's natural environment and behaviour and the actual level of welfare on their farms.

Studies such as this show that attitude may be linked with behaviour. They also show a potential relationship between other aspects of farmers' personal characteristics (i.e. education) and their attitudes. Psychologists have known this for some time and it is embedded in the 'Theory of Reasoned Action' (Fishbein and Ajzen 1975) and the 'Theory of Planned Behaviour' (Ajzen, 1991).

However, Burton (2004) suggests that too much emphasis is placed on the role of attitudes in the role of decision making and that there are two other important elements to the theory: 'subjective norm' and 'perceived behavioural control'. 'Subjective norm' describes how farmers are constantly checking their behavioural intentions against the actual and perceived behaviour of others. 'Perceived behavioural control' suggests that when a person does not feel that certain behaviour will achieve the desired end, he/she is less likely to engage in that behaviour.

Edwards-Jones (2006) believes that there are legitimate reasons why researchers have focused on attitudes in relation to the Theory of Planned Behaviour (i.e. results are easy to analyse and easy to present to research funders) but in future emphasis needs to be given to other factors.

Understanding attitudinal and behavioural change

Change, persuasion and learning

It is generally accepted that land managers regularly change their behaviour, as evidenced by the rapid technological changes in agriculture over the past couple of centuries and particularly the 20th century. Some of these changes were initiated by individuals that created new trends. But usually individual land managers have found themselves responding to changes that were initiated elsewhere. Therefore the behaviour of individuals is 'locked in', not just in a static sense but also in a dynamic sense. Individuals are 'locked in' to behavioural trends rather than specific fixed behaviours (Jackson, 2005).

The question then is; how can people such as land managers be persuaded to change their behaviour? The Hovland-Yale Communication and Persuasion group framed successful persuasion in terms of three key elements (Hovland, 1957):

- The credibility of the speaker (the source);
- The persuasiveness of the arguments (the message);
- The responsiveness of the audience (the recipient).

The idea of an individual being exposed to a logical and persuasive argument which convinces him/her to change his/her attitude and therefore their behaviour is appealingly simple. But the empirical evidence shows that this linear model has significant limitations (Petty *et al.* 2002). Learning can occur without any change in attitudes, whilst a change in attitude (and behaviour) can occur without any assimilation of the persuasion message (Petty and Cacciope, 1981).

Social learning theory

Jackson (2005) noted that policy makers have traditionally placed a high emphasis and expectation on the ability of persuasion to achieve goals that are in the public interest, even though the limitations of persuasion have long been recognised. Exhortation and information remain two of the most widely used ways of trying to influence attitudes or behaviours but according to Campbell (1963) these are

among the least effective methods. Campbell (1963) suggests that the most effective ways to change behaviour are trial and error, observing what others do, and observing how others respond to one's own behaviour.

Bandura (1977) agreed that information and exhortation are not particularly effective ways of learning but he also questioned whether trial and error is the only way that learning proceeds as this would be laborious and potentially disastrous in real life situations. In his highly influential social learning theory he suggested that trial and error is complemented by observing others around us, including our parents, our peers, examples in the media, and modelling our behaviour on what they do.

Bandura (1977) suggests that there is a natural tendency to imitate behaviours in others that we judge to have been beneficial for those individuals. We also learn most effectively from models who are attractive to us, such as our parents (at certain ages), people who are successful, and people who are simply like us. We do not learn purely by imitation. Sometimes we learn by counter example by observing the behaviours of those we would like to dissociate ourselves from, or by observing negative consequences from other peoples' behaviours.

Control, helplessness and participatory problem solving

One of the paradoxes that haunt the debates on behavioural change is that more information is not always better (Jackson, 2005). People (including land managers) like to feel in control of their lives and resist feelings of helplessness. Attempts by external organisations to impose more information on their already crowded lives may simply reinforce their sense of helplessness about a particular situation.

Kaplan and Kaplan (1989) identified three insights into the information processing and problem solving propensities of people. People are motivated:

- To know and understand what is going on: they hate being disorientated or confused;
- To learn, discover and explore: they prefer acquiring information at their own pace and answering their own questions;
- To participate and play a role in what is going on around them: they hate feeling incompetent or helpless.

Using attitudes towards the environment as an example, a number of studies have highlighted the dangers of confusing feelings of helplessness with attitudes of indifference. Levin (1993) investigated the reaction to increasing levels of information about environmental problems and found that more information led to greater concern, but paradoxically also to greater feelings of helplessness. Another study, by NGO Public Agenda, cited by Kaplan (2000), attributed a recent decline in concern about environmental issues not to apathy but to an increasing sense of helplessness and futility on the part of individuals. Allen and Ferrand (1999) found that people who felt that their behaviour would not make any difference were less likely to participate in environmentally responsible behaviours.

Kaplan (2000) proposed that the general solution to this kind of problem is to develop a participatory problem solving approach to encouraging sustainable behaviours and practices. Rather than telling people what to do, the correct approach would be to provide people with an opportunity to figure out for themselves how various broadly defined goals can be met. Kaplan makes a distinction between three different understandings of behavioural change:

- Telling people what to do;
- Asking them what they want to do;
- Helping people to understand the issues and inviting them to explore possible solutions.

Although the first is often used and the second has been regarded as one way of increasing participation in government decisions, it is the third understanding that lies behind the participatory problem solving approach that Kaplan proposes. This approach also recognises the need for the state to support and guide the process of participatory problem solving. There is evidence (Wandersman, 1979) that people in groups prefer to work with experts than on their own. This approach relies explicitly on expertise from governments, corporate and non-profit organisations, and must be supported by appropriate infrastructure and institutions. Participatory problem solving is not a recipe for 'hands-off' government.

Improving farmer access to advice on land management

Garforth *et al.* (2003) carried out a review of agricultural advisory services in developed countries and concurred with much of what has been discussed above. They found that change amongst managers takes time and that a one-shot injection of information or generic advice will rarely lead to instant decisions and changes in behaviour. The more complex the change, the greater the perceived risk and the more people who need to be involved in the decision to change, the more time and support likely to be needed.

According to the findings of the review performed by Garforth *et al.* (2003), schemes underpinned by a well-founded model of human learning and behaviour changes are more likely to succeed than those which make unreasonable assumptions about the significance of information and knowledge constraints. Relevant questions to ask in a particular context are: what are the constraints to change? What factors are driving land manager decisions? How do land managers trade off business, social and personal factors? Garforth *et al.* (2003) accept that answers to such questions would not be uniform and would vary from farmer to farmer (with different personal and farm characteristics) but that there should be enough commonality within recognised categories of farmer to enable schemes to be designed accordingly.

The review also found that government initiatives in Europe are less open-ended and more prescriptive of the range of decisions and actions that can be taken compared

to initiatives in Australia, New Zealand and North America. An example of this is how the means of the successful Monitor Farm approach from New Zealand has been adapted for different ends in the UK. The New Zealand approach to Monitor Farm groups allowed decisions on changes in management to be made by members of the groups after discussion of current technical and business performance and considerations of options for improvement. In Wales, where ten monitor farms were set up, the group processes were set up but the focus was on delivery of environmental goods and far more non-farm stakeholders were in the groups. In England the model is being discussed as an instrument of demonstration of technologies and management practices to land managers who will deliver environmental goods. Garforth *et al.* (2005) state clearly that "the method will not necessarily work so effectively if it is used simply to demonstrate technologies which have been determined by someone outside the group" (p. 13). The same can be said for farm business management strategies. They went on to explain that the "credibility of those providing the service is a key ingredient to success. Conflict of interest is only likely to arise in the eyes of a client if the adviser mixes his or her roles when involved in delivering fee-based services as well as publicly funded schemes".

Garforth *et al.* (2005) found that in line with the recommendations of Edwards-Jones (2006) and the social learning theory of Bandura (1977), when developing a support service for land managers there should be a presumption against prescription of acceptable decisions and behaviours in favour of broad principles and local development of solutions. Sustainable rural businesses, communities and economies are more likely to emerge from creative processes of identifying problems and opportunities, and developing strategies for dealing with them, than from the implementation of a package of measures developed by others.

Case study: Agricultural Development in the Eastern Region (ADER)

The East of England region is a low-lying region neighbouring London, with a rich diversity of rural and coastal landscapes, communities and economies. Agriculture dominates as the main land user: over 80% of the land area is in agricultural production. However it accounts for less than 2% of the region's employment. Farming has had to become a competitive industry and in the late 1980s and early 1990s the industry began to restructure (and continues today) to form larger businesses. The average land area for individual holdings is 73 ha compared with 55 ha for England as a whole (Agricultural Census, 2004, cited by RDPE RSG, 2007). Despite this growth in average size the region has also seen a trend towards more diversity in farm size. Whilst the number of very large arable units (over 2,000 ha) has been growing, with some now over 5,000 ha now under single management, the number of farm holdings in the region has also increased with a marked increase in small, part-time farms. The sector is dividing into commercial farms which are growing in size and those being run as adjuncts to other employment or diversification (RDPE RSG, 2007). In 2009 there were estimated to be 8,300 farms of a size considered sufficient to occupy a farmer for at least half-time (Keep, 2009).

Agricultural Development in the Eastern Region (ADER) was an agricultural support initiative set up in 2001, at a time when farmers in the region were facing radical business choices about either leaving the industry, re-skilling, diversifying or adjusting farming practices in response to the then-new agri-environment incentives arising from the reform of the Common Agricultural Policy. Regarding the latter, for example, there was a clear demand for training courses in topics related to sustainability (agri-environment and organic farming) and the use of bio resources (to avoid pollution and maximise the economic value of wastes). It was jointly developed by the Regional Development Agency (EEDA, as the main funder) and a group of land based Higher Education Colleges (which provided the service), and was endorsed by industry organisations (such as the National Farmers' Union, NFU) which helped to secure political backing and funding and promoted the project to their members.

Just as the farm businesses in the region, ADER's target market, differed markedly in scale, complexity, focus and objectives (e.g. Keep, 2009), those employed within them had a very wide range of previous qualifications and levels of technical expertise and competence. Although by the late 1990s most farmers in the region recognised the need to diversify their businesses, a needs analysis concluded that the process was being inhibited by three 'market failures' (SQW, 2008):

- Farmers were under-investing in training or agri-environment activities due to lack of awareness/skills
- Farmers lacked information on business opportunities and sources of support
- There was a lack of information sharing/knowledge transfer amongst farmers

ADER focused on helping farmers, by means of skills development programmes and business support, to identify new opportunities and develop alternative business activities. Activities included workshops, small group seminars, visits to exemplar businesses and one-to-one on-farm support and guidance. Topics included computer training, business management, supply chain management, sustainability (agri-environment and organic farming) and use of bio-resources (to avoid pollution and maximise the economic value of wastes).

Farmer engagement was recognised from the outset as being fundamental to the success of the project. The ADER business plan (Collison, 2002) listed a number of factors which would determine how ADER would be seen within the market. To be successful in meeting farmers' needs it was considered important to:

- *Be flexible*. The needs of farmers were (and are) constantly changing and ADER needed to be flexible and responsive to keep in touch with changing farmer needs and to be seen to be meeting them;
- *Focus on farmer based promotion*, using farmers wherever possible to promote the programme.

Farmers respond very well to the recommendations of other farmers and ADER made extensive use of farmer organisations to promote its services and recruit other farmers to events;

- *Choose tutors and advisors carefully*. Farmers are very sceptical about the motives of professionals and tutors and advisors. Credibility with farmers is enhanced substantially if those advising them are seen to have practical experience and recent exposure to the realities of farming. ADER used entrepreneurial farmers wherever possible as 'champions' and 'mentors' to assist with provision of training and to lead change in the sector;
- *Provide a choice over timing and delivery location*. Farmers are much more receptive to support which takes into account the farming calendar and which is delivered locally. ADER timetabled its provision for quiet times in the farming year and offered provision at locations where take up could be optimised;
- *Find ways to engage 'at risk' groups*. Anecdotal evidence suggested that traditionally those farmers who are most in need of help to change direction are often the least willing to accept it. ADER sought to find innovative ways to access these 'at risk' groups by working with other agencies that might be able to identify them, such as the Rural Stress Information Network.

The ADER project quickly gained the trust of the farming community and successfully achieved its targets set by the funding agencies such as in providing one-to-one business support. However the experience of the ADER team was that this one-to-one support was not the most successful method in creating real change in farmer's attitudes and behaviours. Instead, the facilitated group learning (i.e. small group seminars) proved to be a more sustainable method in creating attitude and behaviour change in land managers and therefore more sustainable development in the rural community, even though it was perhaps less easy to report that information in a quantitative way to funding bodies.

During its existence ADER supported over 4,000 one-to-one clients and nearly twice that number of group attendees. In 2009, 48% of farms in the region were estimated (Keep, 2009) to have diversified enterprises (i.e. approximately 4000 farms), thus a large percentage of these will have used one or more services offered by ADER. A record of ADER case studies shows that 47% of the supported businesses were involved in adding value to farm production in the form of new products, farm shop outlets and marketing initiatives. Another 33% were not related to farm production but used existing buildings for diversification activities such as holiday accommodation, children's nurseries, a hat shop and upholstery work. The remaining 20% were involved in equine and wildlife and conservation projects. These results suggest that ADER, including its facilitated group learning activities, significantly contributed to supporting innovation amongst farmers in the region.

Discussion

Pretty *et al*. (2010) sought to improve dialogue and understanding between agricultural research and policy by identifying the 100 most important questions for global agriculture. Five of these questions relate to social capital, gender and extension. Prompted by the observation that what will be required will be new metrics of social change and institutional learning, question 63 (p. 229) asks: "What are the best social learning and multistakeholder models (e.g. farmers field schools) to bring together farmers, researchers, advisors, commercial enterprises, policy makers and other key actors to develop better technologies and institutions, for a more equitable, sustainable and innovative agriculture?" The experience of the ADER project provides a partial answer to this question.

The literature on decision-making and behavioural change demonstrates that the assumption that all farmers are the same is false, and that profit maximisation is not a good indicator for predicting the management goals of individual land managers. Different personalities, personal circumstances and social networks create different kinds of management goals for each individual land manager. A 'top-down' approach to problems and providing information on new technologies and ideas as solutions is also relatively ineffective. The behaviours of land managers, like all people, are regulated by the opinions of their peers. Also, as trial and error is an inefficient means for humans to learn, people look to the positive and negative results of their peers to help them decide what behaviour they should adopt.

Too much information in busy people's lives can have a counter-intuitive effect on their attitudes and behaviours. It can lead to feelings of helplessness and therefore an opinion that changing their behaviour will be futile. An effective solution to this is a participatory problem solving approach through facilitated group learning in partnership with government agencies with respected and credible experts. Long-term sustainable change takes time and investment but innovative behaviour is more likely to occur from creative processes of identifying problems and opportunities, and developing strategies for dealing with them, than from the implementation of a package of measures developed by others.

The ADER project, which combined agricultural extension with the other three components of AKIS (research, and education and training through the Colleges and support systems such as EEDA and the NFU), ran for almost seven years. Over this period, the project team learnt how to support innovation amongst farmers through both trial and error and best practice from other projects in other countries. Their developing opinion that facilitated group learning can be a very effective tool for supporting innovation amongst farmers is consistent with the results from the literature, and ADER is an example of 'good practice' that could be implemented elsewhere in the EU.

References

Ajzen, I. (1991): The theory of planned behaviour. Organisational Behaviour and Human Decision Processes **50**, 179-211. http://dx.doi.org/10.1016/0749-5978(91)90020-T

Allen, J. and Ferrand, J. (1999): Environmental Locus of Control, Sympathy and Pro-environmental behaviour. Environment and Behaviour **31**, 338-353. http://dx.doi.org/10.1177/00139169921972137

Austin, E. J., Deary, I. J., Edwards-Jones, G. and Arey, D. (2005): Attitudes to farm welfare: Factor Structure and Personality Correlates in Farmers and Agricultural Students. Journal of Individual Differences **26**, 107-120. http://dx.doi.org/10.1027/1614-0001.26.3.107

Bandura, A. (1977): Social learning Theory. Englewood Cliffs, NJ: Prentice Hall.

Burton, R. J. F. (2004): Reconceptualising the 'behavioural approach' in agricultural studies: a socio-psychological perspective. Journal of Rural Studies **20**, 359-371. http://dx.doi.org/10.1016/j.jrurstud.2003.12.001

Campbell, D. (1963): Social Attitudes and Other Acquired Behavioural Dispositions, in Koch, S. (ed.) Psychology: a study of a science, vol. 6, 94-172. New York: McGraw Hill.

Collison, M. (2002): Agricultural Development in the Eastern Region (ADER) Partnership Business Plan 2002-2012. Unpublished document.

EC (2009). 2nd SCAR Foresight Exercise: New Challenges For Agricultural Research: Climate Change, Food Security, Rural Development, Agricultural Knowledge Systems. Luxemburg: European Commission.

Edwards-Jones, G. (2006): Modelling farmer decision-making: concepts progress and challenges. Animal Science **82**, 783-790. http://dx.doi.org/10.1017/ASC2006112

Fishbein, M. and Ajzen, I. (1975): Belief, attitude intention and behaviour: introduction to theory and research. Reading, MA: Addison-Wiley.

Garforth, C., Angell, B., Archer, J. and Green, K. (2003): Improving farmers' access to advice on land management: lessons from case studies in developed countries. Network Paper no. 125. London: Agricultural Research & Extension Network.

Hovland, C. (1957): The Order of Presentation in Persuasion. New Haven, CT: Yale University Press.

Jackson, T. (2005): Motivating sustainable consumption: a review of evidence on consumer behaviour and behavioural change. London: Sustainable Development Research Network.

Kaplan, S. (2000): Human Nature and Environmentally Responsible Behaviour. Journal of Social Issues **56** (3), 491-508. http://dx.doi.org/10.1111/0022-4537.00180

Kaplan, S. and Kaplan, R. (1989): The visual environment: public participation in design and planning. Journal of Social Issues **45** (1), 59-86. http://dx.doi.org/10.1111/j.1540-4560.1989.tb01533.x

Keep, M. (2009). Farming diversification in England: statistics. House of Commons Library Standard Note: SN/SG/2879.

Knickel, K. Tisenkopfs, T. and Peter, S. (2009): Innovation processes in agriculture and rural development. Final report of the EU FP7 project 'IN-SIGHT'.

Levin, G. (1993): Too green for their own good. Advertising Age **64**, 97.

Leeuwis, C. and van den Ban, A. (2004): Communication for Rural Innovation: Rethinking Agricultural Extension (3rd edition), Blackwell Publishing.

Petty, R. and Cacioppo, J. (1981): Attitudes and Persuasion: classic and contemporary approaches. Dubuque, IA: William C Brown.

Petty, R., Priester, J. and Brinol, P. (2002): Mass Media and Attitude Change: Advances in the elaboration likelihood model, in J. Bryant and D. Zillman (eds) Media Effects: Advances in theory and research (2nd edition). Hillsdale, NJ: Erlbaum.

Pretty, J., Sutherland, W.J and others (2010): The top 100 questions of importance to the future of global agriculture. International Journal of Agricultural Sustainability **8** (4), 219–236. http://dx.doi.org/10.3763/ijas.2010.0534

RDPE RSG (2007): Rural Development Programme for England; East of England Regional Implementation Plan 2007 – 2013. Draft (11) September 2007. RDPE Regional Steering Group.

SQW (2008): Evaluating the impact of EEDA. Final report on Bundle D: Rural Business Support. Cambridge: SQW Consulting.

Wandersman, A. (1979): User participation: a study of participation, effects, mediators and individual differences. Environment and Behaviour **11**, 185-208. http://dx.doi.org/10.1177/0013916579112003